New York State Integrated Pest Management Program | Cornell Cooperative Extension

# Elements of IPM for Winter Wheat in New York State

## MAJOR PESTS

| Insects | Diseases | Weeds |
|---|---|---|
| Hessian fly | **Seed Rots/Seedling Diseases** | annual broadleaves |
| aphids (oat-bird cherry; English grain; greenbug) | seedling blights: Pythium, Rhizoctonia | annual grasses |
| true armyworm | | winter annuals: corn chamomile |
| fall armyworm | **Root/Stem Diseases** | biennial weeds |
| European corn borer | Fusarium root and crown rot complex | perennial weeds: yellow nutsedge |
| cereal leaf beetle | foot rot/eyespot complex | rough stalk bluegrass |
| grasshoppers | take-all | wild garlic |
| | | triazine resistant broadleaves |
| | **Leaf Diseases** | |
| | powdery mildew | |
| | rusts: leaf, stem, stripe | |
| | *Septoria tritici* blotch | |
| | *Stagonospora nodorum* blotch | |
| | tan spot | |
| | | |
| | **Head and Seed Diseases** | |
| | Fusarium head blight/scab | |
| | Glume blotch | |
| | smuts: common bunt, loose smut | |
| | | |
| | **Virus Diseases** | |
| | barley yellow dwarf virus (BYDV) | |
| | cereal yellow dwarf virus (CYDV) | |
| | wheat spindle streak mosaic virus (WSSMV) | |
| | soilborne wheat mosaic virus (SBWMV) | |

## Pre-Season IPM Considerations

| Activity | Priority | Points | Acreage Goal | Grower Points |
|---|---|---|---|---|
| Soil test at least every three years. | H | 15 | 75% | |
| Follow soil test recommendations when applying fertilizer. | H | 15 | 75% | |
| Select certified seed and adapted varieties with resistance or tolerance to diseases important in your area. | H | 15 | 75% | |
| Review weed maps of fields to choose appropriate weed control strategies. | H | 15 | 75% | |
| Rotate wheat fields every year. | H | 15 | 75% | |
| Maintain field history records annually. (Use Cornell Cropware or other crop recordkeeping software.) | H | 15 | 75% | |
| Calibrate sprayer(s) annually. | M | 10 | --- | |
| Use at least one soil conservation practice: no till, zone till, reduced till to reduce soil erosion. | L | 5 | 15% | |
| Alternate insecticides with different modes of action each year when controlling specific pests to reduce resistance development. | H | 15 | 75% | |
| Use herbicides with multiple modes of action within the same year to reduce resistant weeds. | H | 15 | 75% | |
| Use Environmental Impact Quotient (EIQ) or Windows Pesticide Screening Tool (Win PST) to help select a more environmentally friendly pesticide when needed. | H | 15 | 75% | |
| Maintain flowering plants in the field edges, hedge rows or flowering cover crops to provide pollinator habitat. | **Bonus** | **5** | | |
| TOTAL | | 150 | | |

## At Planting IPM Considerations

| Activity | Priority | Points | Acreage Goal | Grower Points |
|---|---|---|---|---|
| Plant certified seed that has been treated with fungicide(s) to reduce risk of establishment problems. | H | 15 | 75% | |
| Plant winter wheat within 14 days after the "Hessian fly-free" date for your area. | H | 15 | 80% | |
| Use bee friendly planting technology (seed lubricant that does not create dust and direct blowers toward the soil surface). | M | 10 | 75% | |
| TOTAL | | 40 | | |

## In-Season IPM Considerations - Fall

| Activity | Priority | Points | Acreage Goal | Grower Points |
|---|---|---|---|---|
| Evaluate stand prior to winter to assess productivity potential for following season. (stand reduction can be caused by diseases) | M | 10 | 50% | |
| Scout seedlings for fall germinating weeds, insect pests (aphids and Hessian fly) and diseases. | H | 15 | 75% | |
| TOTAL | | 25 | | |

### In-Season IPM Considerations - Spring and Summer

| Activity | Priority | Points | Acreage Goal | Grower Points |
|---|---|---|---|---|
| Scout every 7-10 days to assess seedlings for weeds, insect pests and diseases. | H | 15 | 75% | |
| Use recommended economic thresholds for making management decisions about insect pests and diseases of importance. | H | 15 | 75% | |
| Evaluate stand in late March or early April (spring green up) to assess winterkill, diseases and productivity potential. | M | 10 | 50% | |
| When making fungicide applications decisions use the Wheat Fungicide Disease Decision Model in the Cornell Integrated Crop Management Guide. | H | 15 | 75% | |
| Make or update written weed maps for each field. | M | 10 | 50% | |
| TOTAL | | 65 | | |

### Harvest and Post-Harvest IPM Considerations

| Activity | Priority | Points | Acreage Goal | Grower Points |
|---|---|---|---|---|
| Adjust combine blower fans if Fusarium head blight is present or suspected to remove infected kernels. | H | 15 | --- | |
| Update weed maps in fall to use when planning for next year. | H | 10 | 50% | |
| Establish a cover crop for weed control, soil surface protection, and to capture nitrogen, and pollen for pollinators. (non-cereal grain crop) | M | 10 | 40% | |
| TOTAL | | 35 | | |

### Calculate Total Points Earned - 80% Needed to Qualify for Certification

| Section | Available Points | Grower Total |
|---|---|---|
| Pre-Season IPM Considerations | 150 | |
| At Planting IPM Considerations | 40 | |
| In-Season IPM Considerations - Fall | 25 | |
| In-Season IPM Considerations - Spring and Summer | 65 | |
| Harvest and Post-Harvest Considerations | 35 | |
| TOTAL<br>80% = 252 | 315 | |

## To Learn More

### Specific information about the use of these IPM elements can be found in the following publications:

1. NYS IPM Weekly Field Crops Pest Report published during the growing season, http://blogs.cornell.edu/ipmwpr.
2. NYS IPM Livestock and Field Crops Program, https://nysipm.cornell.edu/agriculture/livestock-and-field-crops.
3. Cornell Guide for Integrated Field Crop Management, http://store.cornell.edu/c-875-guidelines.aspx.
4. Cornell Cropware or other crop record keeping system, http://www.farminfotech.com/cropware.htm.
5. Cornell Cooperative Extension Field Crop Meetings when offered.

## IPM Options for Managing Specific Wheat Pests

The management techniques listed below offer varying degrees of control for pests listed.

For more information, consult the Cornell Guide for Integrated Field Crop Management.

| Wheat Pests | Planting Date | Resistant Varieties | Seed Treatment Pesticides | Pesticide | Field Sanitation | Crop Rotation | Biological Control |
|---|---|---|---|---|---|---|---|
| weeds | √ | √ | | √ | √ | √ | |
| Hessian Fly | √ | √ | | | √ | √ | |
| cereal leaf beetle | √ | | | √ | √ | √ | √ |
| armyworm | | | | √ | √ | | √ |
| fall armyworm | | | | √ | √ | | √ |
| European corn borer | | | | √ | √ | | |
| aphids | √ | | √ | √ | | | √ |
| seedling blights | | | √ | √ | √ | √ | |
| powdery mildew | | √ | | √ | | | |
| leaf rust | | √ | | √ | | | |
| stem rust | | √ | | √ | | | |
| crown rust | | √ | | √ | | | |
| scab | | √ | √ | √ | | √ | |
| loose smut | | | √ | | | | |
| common bunt | | | √ | | | | |
| tan spot | | | √ | √ | √ | √ | |
| Septoria/Stagonospora blotches | | √ | √ | √ | √ | √ | |
| BYD virus | √ | √ | | | | | |
| WSSM virus | | √ | | | | | |